

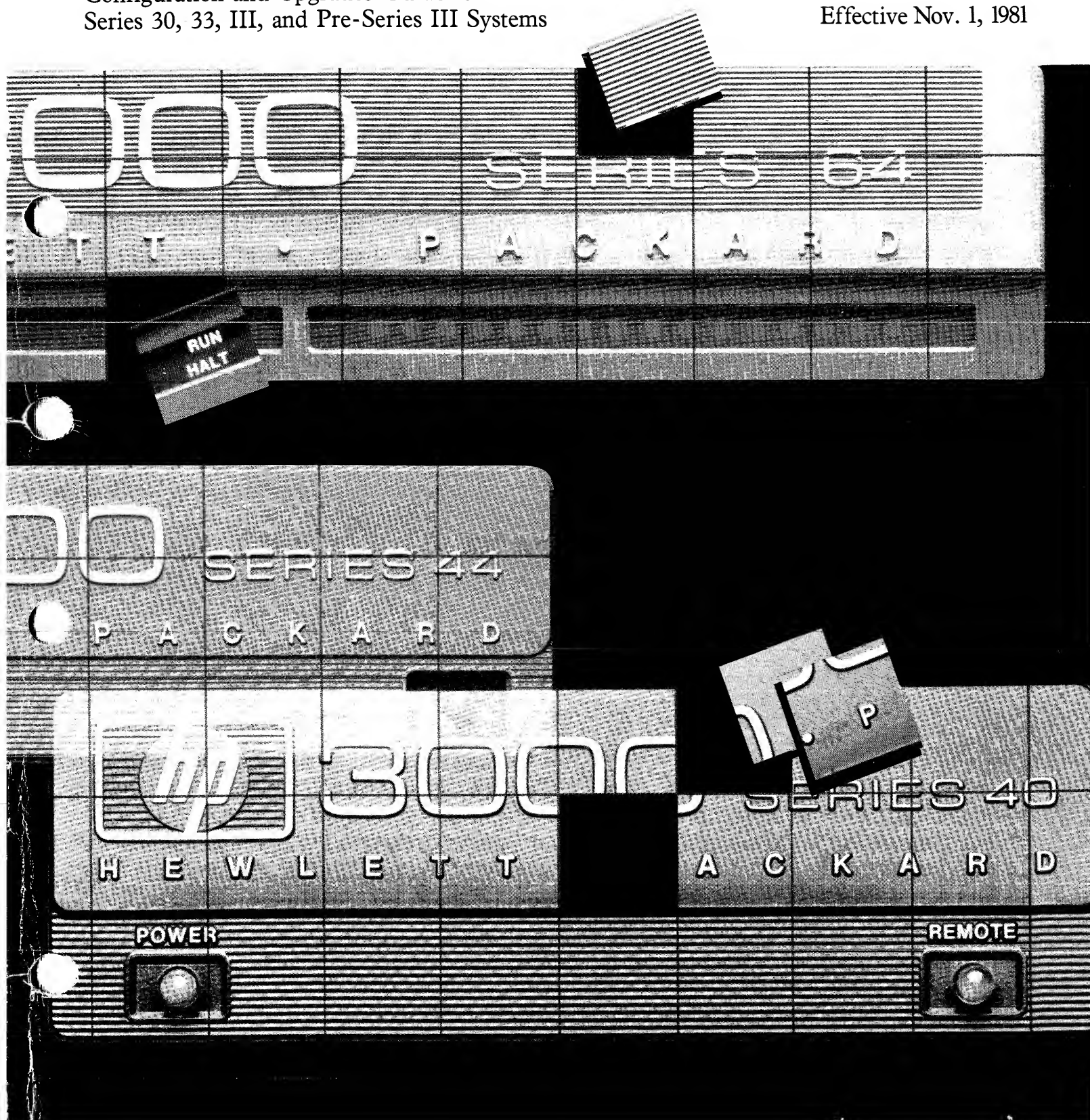
# HP 3000 Computer Systems



When performance must be  
measured by results

Configuration and Upgrades Guide for  
Series 30, 33, III, and Pre-Series III Systems

Effective Nov. 1, 1981



# **Configuration and Upgrades Guide for Series 30, 33, III and Pre-Series III Systems**



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**Configuration  
Information for  
Series 30 and 33,  
Series II and III  
Systems**

## Hardware Comparisons

| Features   | Series 3x<br>(Series 30 or 33)  | Series II   | Series III   |
|--|---|---|--|
| Central Processing Unit  | 214 firmware instructions   | 209 firmware instructions   | 209 firmware instructions  |
| Fault Control<br>Semiconductor Memory  | 256 Kb standard<br>(1 Mb maximum)   | 128 Kb standard (Model 5)<br>512 Kb standard (Model 8)  | 256 Kb standard<br>(2 Mb maximum)  |
| I/O Channel for Discs  | General I/O Channel<br>(GIC)  | Selector Channel  | Selector Channel   |
|  | Up to 8 7906/7920/7925<br>disc drives   | Up to 8 7920/7925 disc<br>drives  | Up to 8 7920/7925 disc<br>drives   |
| Terminals (Point-to-point,<br>Multipoint, System<br>Console and DSN/DS<br>virtual terminals) | Up to 48*   | Up to 64  | Up to 96   |
| Synchronous<br>Communications Lines**  | Up to 3 optional for<br>Series 30<br>Up to 7 optional for<br>Series 33  | Up to 7 optional  | Up to 7 optional   |
| Magnetic Tape  | Up to 4 1600 bpi and one<br>1600/6250 bpi drives<br>available   | Up to 8 drives (800 or 1600<br>bpi)   | Up to eight 800 or 1600 bpi<br>and one 1600/6250 bpi<br>drives available   |
| Flexible Disc  | One 1.2 Mb flexible disc<br>drive optional  | Not available   | Not available  |
| System Line Printers   | Up to 2 line printers   | Up to 4 line printers   | Up to 4 line printers  |
| Remote Character Printers  | Up to 4   | Up to 4   | Up to 4  |
| HP 2680 Laser<br>Printing System   | Available   | Not Available   | Available***   |
| I/O Slots for Expansion  | 3 standard (8 maximum)<br>for Series 30<br>7 standard (20 maximum)<br>for Series 33<br><br>Available for additional<br>ADCCs (point-to-point ter-<br>minals), printers, GICs (to<br>support magnetic tape<br>drives) or INPs (distributed<br>communications boards) | 10 standard (Model 6)<br>23 standard (Model 8)<br><br>Available for additional<br>ATCs (point-to-point termi-<br>nals), printers, card reader,<br>card reader/punch, paper<br>tape reader, paper tape<br>punch, magnetic tape or<br>INPs (distributed commu-<br>nications boards) | 9 standard (29 maximum)<br><br>Available for additional<br>ATCs (point-to-point termi-<br>nals), printers, card reader,<br>card reader/punch, paper<br>tape reader, paper tape<br>punch, magnetic tape or<br>INPs (distributed commu-<br>nications boards) |

\*Use of both point-to-point and multipoint terminals is required to achieve a system configuration with the maximum number of all peripherals.

\*\*\*Requires the HP-IB interface module 30341A.

\*\*Refers to number of Intelligent Network Processors (INPs) supported, which provide communication links from the HP 3000 to other HP 3000s, IBM (compatible) mainframes, and multipoint terminals.

## Peripheral Support Matrix

Peripherals supported on the Series 30, Series 33, Series II, and Series III are shown in the chart. (Series 30 or Series 33 availability is indicated by 3x.) The support of

hardware and software products is subject to change, however, with new releases of the MPE operating system.

| Availability                | Product No. | Description                               |
|-----------------------------|-------------|---|
| <b>Disc Drives</b>          |             |   |
| 3x                          | 7906M,S     | 20 Megabyte Cartridge Disc Drive          |
| 3x II/III                   | 7920M,S     | 50 Megabyte Disc Drive                    |
| 3x II/III                   | 7925M,S     | 120 Megabyte Disc Drive                   |
| 3x II/III                   | 7925T       | 240 Megabyte Add-On Disc Storage System   |
| <b>Flexible Disc Drives</b> |             |   |
| 3x                          | 9895A-010   | 1.2 Megabyte Flexible Disc Drive          |
| <b>Magnetic Tape Drives</b> |             |   |
| II/III                      | 7970B       | 800 bpi Digital Magnetic Tape Drive       |
| 3x II/III                   | 7970E       | 1600 bpi Digital Magnetic Tape Drive      |
| 3x III**                    | 7976A       | 1600/6250 bpi Digital Magnetic Tape Drive |
| <b>Terminals</b>            |             |   |
| 3x II/III                   | 2382A       | Interactive Display Terminal              |
| 3x II/III                   | 2621B       | Interactive Display Terminal              |
| 3x II/III                   | 2622A       | Interactive Display Terminal              |
| 3x II/III                   | 2623A       | Interactive Display Terminal              |
| 3x II/III                   | 2624B       | Interactive Display Terminal              |
| 3x II/III                   | 2626A/W     | Interactive Display Terminal              |
| 3x II/III                   | 2640x       | Interactive Display Terminal              |
| 3x* II/III                  | 2641A       | APL Display Station                       |
| 3x II/III                   | 2642A       | Interactive Display Terminal              |
| 3x II/III                   | 2645A       | Interactive Display Terminal              |
| 3x II/III                   | 2647A       | Intelligent Graphics Terminal             |
| 3x II/III                   | 2648A       | Graphics Terminal                         |

| Availability                 | Product No. | Description                          |
|------------------------------|-------------|--------------------------------------|
| <b>Terminals (continued)</b> |             |                                      |
| 3x                           | 2649E       | System/Maintenance Console           |
| 3x II/III                    | 2635B       | Printing Terminal                    |
| 3x II/III                    | 3075A       | Desk Top Data Capture Terminal       |
| 3x II/III                    | 3076A       | Wall Mounted Data Capture Terminal   |
| 3x II/III                    | 3077A       | Time Reporting Terminal              |
| <b>Printers</b>              |             |                                      |
| 3x II/III                    | 2601A       | 40 cps Daisy-Wheel Printer           |
| 3x II/III                    | 2608A       | 400 lpm Dot Matrix Line Printer      |
| 3x II/III                    | 2617A       | 600 lpm Drum Line Printer            |
| 3x II/III                    | 2619A       | 1000 lpm Chain Line Printer          |
| 3x II/III                    | 2631B       | 180 cps Dot Matrix Character Printer |
| 3x III**                     | 2680A       | Intelligent Page Printer             |
| <b>Plotters/Graphics</b>     |             |                                      |
| 3x II/III                    | 7220C/T     | Graphics Plotter                     |
| 3x II/III                    | 7221C/T     | Graphics Plotter                     |
| 3x II/III                    | 7225B       | Graphics Plotter                     |
| 3x II/III                    | 7240A       | Plotter/Printer                      |
| 3x II/III                    | 7245B       | Plotter/Printer                      |
| 3x II/III                    | 7580A       | Drafting Plotter                     |
| 3x II/III                    | 9872C/T     | Graphics Plotter                     |
| 3x II/III                    | 9111A***    | Data Tablet                          |
| 3x II/III                    | 9874A***    | Digitizer                            |
| II/III                       | 30126A      | CalComp Plotter Interface Subsystem  |
| 3x II/III                    | 7260A       | Optical Mark Reader                  |

\*Supported as an HP 2645A (APL features are not supported.)

Support for foreign device users—There may be occasions when it is desired to interface a non-Hewlett-Packard product to an HP 3000. Support for the foreign device and system modifications required to drive it are the responsibility of the customer. If the HP 3000 exhibits problems resulting from the foreign device, the system must be reconfigured to its original Hewlett-Packard configuration and with the current supported version of the operating system before service can be rendered under the Customer Maintenance Agreement. Hewlett-Packard will not warrant compatibility of operating systems, user subsystems, or modifications to Hewlett-Packard hardware necessitated by design updates with any non-Hewlett-Packard product to an HP 3000.

\*\*Requires the HP-IB Interface Module 30341A.

\*\*\*These input devices may be used on an HP 3000 system only with the Interactive Design System (IDS/3000) software for designing characters and logos to be printed on the HP 2680A Intelligent Page Printer, or with user supplied software.

## Software Support Matrix

Software supported on the Series 30, 33, Series II, and Series III are shown in the chart. (Series 30 or Series 33 availability is indicated by 3x.) The support of hardware

and software products is subject to change, however, with new releases of the MPE operating system.

| Availability | Product No. | Description                                    |
|--------------|-------------|--|
|              |             | <b>Languages</b>                               |
| 3x II/III    | 32233A      | COBOL II/3000 Compiler                         |
| 3x II/III    | 32104A      | RPG/3000 Compiler                              |
| 3x II/III    | 32102B      | FORTTRAN/3000 Compiler                         |
| 3x II/III    | 32111A      | BASIC/3000 Interpreter & Compiler              |
| 3x II/III    | 32106A      | PASCAL/3000 Compiler                           |
| II/III       | 32105A      | APL/3000 Language Subsystem                    |
| 3x II/III    | 32100A      | SPL/3000 Compiler                              |
|              |             | <b>Data Communications</b>                     |
| 3x II/III    | 32190A      | DSN/DS Distributed Systems Software            |
| 3x II/III    | 30130E      | DSN/RJE (2780/3780 Emulation)                  |
| 3x II/III    | 32192A      | DSN/MRJE Multileaving Remote Job Entry         |
| 3x II/III    | 32193A      | DSN/MTS Multipoint Terminal Software           |
| 3x II/III    | 32229A      | DSN/IMF Interactive Mainframe Facility         |
|              |             | <b>Office Systems</b>                          |
| 3x II/III    | 36578A      | TDP/3000 Text and Document Processor           |
| 3x II/III    | 32250A      | DSG/3000 Decision Support Graphics             |
| 3x III       | 36580A      | IFS/3000 Interactive Formatting System         |
| 3x III       | 36581A      | IDS/3000 Interactive Design System             |
| 3x II/III    | 36576A      | HPSLATE Fullscreen Interactive Word Processing |
| 3x II/III    | 32120A      | HPWORD Interactive Word Processing             |
|              |             | <b>Information Management Systems</b>          |
| 3x II/III    | 32244A      | Dictionary/3000 Relational Data Dictionary     |
| 3x II/III    | 32245A      | Report/3000 Report Writer                      |
| 3x II/III    | 32246A      | Inform/3000 User Report Generator              |

| Availability | Product No. | Description  |
|--------------|-------------|--|
|              |             | <b>Information Management Systems (continued)</b>    |
| 3x II/III    | 32247A      | Transact/3000 Transaction Processing Language        |
| 3x II/III    | 32248A      | Programmer Productivity Package                      |
|              |             | <b>Additional Application Software</b>               |
| 3x           | 32199A      | Flexible Discscopy                                   |
| 3x II/III    | 32205B      | Scientific Library                                   |
| 3x II/III    | 32238A      | OPT/3000 On-Line Performance Tool                    |
| 3x II/III    | 32900B      | SIS/3000 Student Information System                  |
| 3x II/III    | 32902A      | CIS/3000 College Information System                  |
|              |             | <b>Manufacturing Systems</b>                         |
| 3x II/III    | 32260A      | Materials Management/3000                            |
| 3x II/III    | 32260UA     | British Language Version Materials Management/3000   |
| 3x II/III    | 32260ZA     | Italian Language Version Materials Management/3000   |
| 3x II/III    | 32260NA     | Norwegian Language Version Materials Management/3000 |
| 3x II/III    | 32260SA     | Swedish Language Version Materials Management/3000   |
| 3x II/III    | 32260EA     | Spanish Language Version Materials Management/3000   |
| 3x II/III    | 32260DA     | German Language Version Materials Management/3000    |
| 3x II/III    | 32260XA     | Finnish Language Version Materials Management/3000   |
| 3x II/III    | 32260FA     | French Language Version Materials Management/3000    |
| 3x II/III    | 32270A      | Production Management/3000                           |
| 3x II/III    | 32270UA     | British Language Version Production Management/3000  |



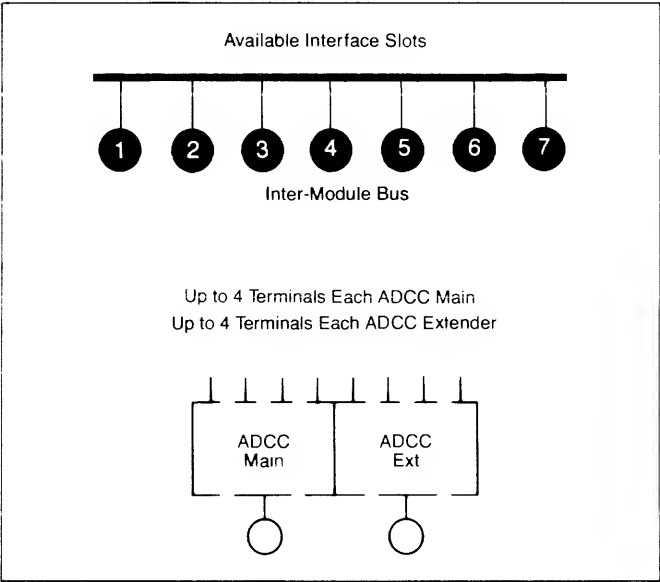
# Configuration Diagram Overview

## Overview

To aid in configuring an HP 3000 Series 30, 33, II, or III system, diagrams are included in the following pages. By following the steps indicated, it is simple to plan a new system or add to an existing one.

## Selection Options

When choosing options denoted by circles, be certain to write the number of the interface slot which the option will occupy in the open circle beside the selected option, then cross out the numbered circle connected to the IOP bus or Inter-Module Bus (IMB) to show that interface slot is no longer available. For example,

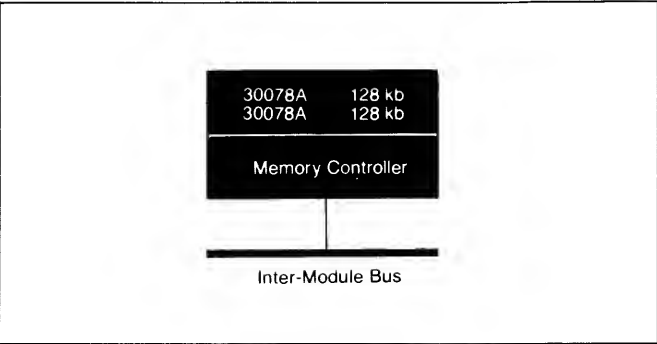


As a result, the options that have been chosen and the interface slots they occupy will be evident at a glance. DO NOT EXCEED THE TOTAL NUMBER OF AVAILABLE INTERFACE SLOTS ON THE INTER-MODULE BUS OR IOP BUS.

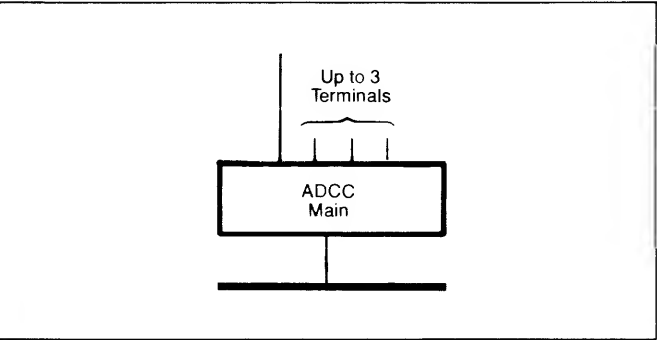
Devices identified with triangles, squares or hexagons will function only in the positions designated by matching geometric shapes. Hexagons denote non-IMB slots, which may be used for INPs and 2617/19A printer interfaces only.

The following apply to the Series 30, 33, and III diagrams.

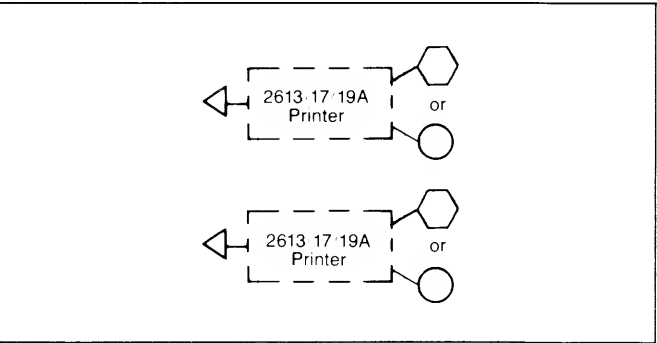
Equipment supplied with the System Processor Unit is in darkened boxes.



Equipment required, though ordered separately from System Processor Unit is in heavily outlined boxes.



Optional equipment is in white boxes outlined by dashed lines.



# Configuration Guidelines

## HP 3000 Series 30

### Interfacing Optional Equipment

Eight I/O slots are available for interfacing additional devices to the Series 30. These I/O slots appear as numbered circles attached to the Series 30 Inter-Module Bus (IMB) on the following Series 30 Configuration Diagram. The eight I/O slots can be interfaced to any of the following devices: Asynchronous Data Communication Controllers (ADCCs), General I/O Channels (GICs), Intelligent Network Processors (INPs), 2617A, or 2619A (denoted 2617/19A) printer interfaces. One GIC is included in the base system; up to three GICs are supported.

### Connecting Additional Terminals

Point-to-Point terminals are connected to the Series 30 by means of the Asynchronous Data Communications Controllers (ADCCs). Each ADCC provides ports for four point-to-point terminals. There are two types of ADCCs: ADCC-Mains and ADCC-Extenders. ADCC-Mains and ADCC-Extenders must be configured and ordered in alternating fashion: ADCC-Main, ADCC-Extender, ADCC-Main, etc. The first ADCC-Main is required and must be ordered separately. This permits the connection of the System/Maintenance Console and up to three terminals (the 2649E System/Maintenance Console is required and must be ordered separately). The Series 30 supports a maximum of eight ADCCs altogether (for a maximum of 32 point-to-point asynchronous terminals). 2601A daisy-wheel printers and 2631B dot matrix character printers can also be connected to ADCC terminal ports (see Printers).

To attach multipoint terminals, the Series 30 requires one copy of DSN/Multipoint Terminal Support (DSN/MTS), and, for each multidrop communication line, one Intelligent Network Processor (INP). The number of terminals that may be attached to each multidrop communication line is normally determined by response time considerations, but may be limited by the specific cabling option chosen. Up to 47 multipoint terminals total are supported per system, on one or more multidrop lines.

Up to 48 terminals total (including point-to-point, multipoint, system console, and DSN/DS virtual terminals) can be configured per system.

### Disc Drives

The first disc drive attached to the Series 30 is called a "master" disc, which means that it contains a controller. One master disc is required with the Series 30 and is ordered separately from the System Processor Unit. 20

Mb (7906M), 50 Mb (7920M), and 120 Mb (7925M) master disc drives are available. Additional 7906 or 792x drives are called "slave" disc drives, because they are attached to, and share the controller of, the master disc drive. Up to seven slave disc drives may be attached to the master disc drive: 20 Mb, 50 Mb, and 120 Mb slave disc drives are available. For the Series 30 the master disc can be located 2 meters from the system; a 2 meter cable is provided with the master disc.

### Magnetic Tape Drives

A 1600 bits per inch (bpi) magnetic tape drive is required for system backup and distribution of software updates, for Series 30 systems with more than 20 Mb disc storage.\* (If the Series 30 has only 20 Mb disc storage, a 1.2 Mb flexible disc drive may be used instead of the magnetic tape drive. The flexible disc drive may also be used in addition to one or more magnetic tape drives.) The first magnetic tape drive attached to the Series 30 is called the "master", because it contains a built-in controller. The master tape drive must be attached to a dedicated General I/O Channel (GIC), which is ordered separately. Up to three additional slave magnetic tape drives may be attached to the master. All magnetic tape drives are enclosed in separate low-boy cabinets with sloping front access to the drives. The master magnetic tape drive can be located 6 meters from the system. A 6 meter cable is provided with the tape drive. In addition, a 6250 bpi magnetic tape drive may be attached to the Series 30.

### Printers

The Series 30 supports up to two system line printers. 2608A (400 lpm), 2617A (600 lpm), or 2619A (1000 lpm) printers are supported. The 2608A is attached to a GIC in the System Processor Unit; the 2617/19A printers attach to a GIC and use an interface which occupies one I/O slot in the Series 30. This interface is ordered as option 301 to the 2617/19A printer. Each 2608A printer comes with a two-meter cable.† Each HP 2617/19A printer with option 301 comes with a 15 meter (50 ft) cable.

In addition to system line printers which are attached to GICs, the Series 30 can support local or remote spoolable 2631B character printers through one or more ADCCs. When used as a local/remote spoolable printer, the 2631B is connected directly to an ADCC port via hard-wired cable or modems. Up to four 2631B printers are supported on the Series 30 in this fashion (specify 2631B with option 331).

\*If the Series 30 has a dedicated serial disc (7906S, 7920S, or 7925S) for backup, and a flexible disc drive for distribution of software updates, the magnetic tape drive is not required.

†For 32430B Series 30 systems with built-in flexible disc drive, one 2608A two-meter cable may be increased to four meters by an optional extender cable. This is not allowed for 32430B/C Series 30 systems without built-in flexible disc drive.

In addition to local/remote spoolable printers, the Series 30 can support 2601A daisy-wheel printers as terminals (non-spooled only) via ADCCs. The 2601A can be directly attached to an ADCC port via hardwired cable.

The 2631B and 2601A printers can also be attached as slave devices (non-spooled only) to Series 30 terminals, under the control of user-supplied application programs.

The Series 30 also supports the 2680A Intelligent Page Printer. Specify 2680A with option 301 for Series 30 cable. Up to two 2680A's may be attached to a GIC.

### **Data Communications**

The Series 30 can support up to three Intelligent Network Processors (INPs). Each INP provides one communication line that may be used by DSN/DS, DSN/MTS, DSN/MRJE, DSN/RJE, DSN/IMF software. The same INP can be used (non-concurrently) by any of these software products. Each INP board requires one I/O slot and a connection to a GIC.

### **Flexible Disc Drive**

One 1.2 Mb flexible disc drive can be used on the Series 30. Order 9895A with option 010 to specify single master drive, and option 333 to specify Series 30 cable. The flexible disc drive attaches to a GIC in the Series 30; a 2M (6.5 feet) cable is provided.

### **Memory Expansion**

256 Kb of fault control memory is supplied with the System Processor Unit. System memory sizes of 512 Kb, 768 Kb, and 1024 Kb are also supported. 30078A 128 Kb Memory Array boards should be ordered in pairs to achieve these memory sizes.

### **Previous Series 30 systems**

Series 30 systems with built-in flexible disc drive (model 32430B, 32431B) have additional configuration guidelines.

For these Series 30 systems with built-in flexible disc drive and either:

- 1) two GICs and three INPs, or
- 2) three GICs and one or two INPs,

The maximum number of I/O interface boards (GICs, ADCCs, INPs, and 2617/19A printer interfaces) is nine (i.e. one I/O slot must be left empty after all I/O interface boards are installed).

For Series 30 systems with built-in flexible disc drive and three GICs and three INPs, the maximum number of I/O interface boards is eight (i.e. two I/O slots must be left empty after all I/O interface boards are installed).

## **HP 3000 Series 33**

### **Interfacing Optional Equipment**

The Series 33 System Processing Unit contains seven I/O slots for interfacing any of the following devices: Asynchronous Data Communications Controllers (ADCCs), General I/O Channels (GICs), Intelligent Network Processors (INPs), or 2617/19A Line Printer Interfaces. Two GICs are included in the base system; up to four GICs are supported.

If more than seven additional I/O slots are required, the Series 33 Expansion Kit (30416A) may be ordered to provide an additional thirteen I/O slots. Of these thirteen slots, six are limited to supporting only INPs and 2617/19A Line Printer Interfaces.

### **Connecting Additional Terminals**

The first Asynchronous Data Communications Controller-Main (ADCC-Main) is required and must be ordered separately. This permits the connection of the System/Maintenance Console and up to three terminals (the 2649E System/Maintenance Console is required and is ordered separately). Additional terminal capacity may be added in groups of four by adding ADCC-Mains and Extenders. Always add an ADCC-Extender to an existing ADCC-Main before adding another ADCC-Main. The Series 33 supports a maximum of 32 point-to-point terminals, including console. 2601A daisy-wheel printers and 2631B dot matrix character printers can also be connected to ADCC terminal ports (see Printers).

To attach multipoint terminals, the Series 30 requires one copy of DSN/Multipoint Terminal Software (DSN/MTS) and, for each multidrop communication line, one Intelligent Network Processor (INP). The number of terminals that may be attached to each multidrop communication line is normally determined by response time considerations, but may be limited by the specific cabling option chosen. Up to 47 multipoint terminals total are supported per system, on one or more multidrop lines.

Up to 48 terminals total (including point-to-point, multipoint, system console, and DSN/DS virtual terminals) can be configured per system.

## Disc Drives

The first disc drive attached to the Series 33 is called a "master" disc, which means that it contains a controller. One master disc is required with the Series 33 and is ordered separately from the System Processor Unit. 20 Mb (7906M), 50 Mb (7920M), and 120 Mb (7925M) master disc drives are available. Additional 7906 or 792x drives are called "slave" disc drives, because they are attached to, and share the controller of, the master disc drive. Up to seven slave disc drives may be attached to the master disc drive; 20 Mb, 50 Mb, and 120 Mb slave disc drives are available. The maximum Series 33 disc memory capacity is achieved if all disc drives used are 120 Mb, resulting in a total of 960 Mb storage. For the Series 33 the master disc can be located 2 meters from the system; a 2 meter cable is provided with the master disc.

## Magnetic Tape Drives

A 1600 bits per inch (bpi) magnetic tape drive is required for system backup and distribution of software updates, for Series 33 systems with more than 20 Mb disc storage.\* (If the Series 33 has only 20 Mb disc storage, a 1.2 Mb flexible disc drive may be used instead of the magnetic tape drive. The flexible disc drive may also be used in addition to one or more magnetic tape drives.) The first magnetic tape drive attached to the Series 33 is called the "master," because it contains a built-in controller. The master tape drive must be attached to a dedicated General I/O Channel (GIC). Up to three additional slave magnetic tape drives may be attached to the master. All magnetic tape drives are enclosed in separate low-boy cabinets with sloping front access to the drives. The master magnetic tape drive can be located 6 meters from the system. A 6 meter cable is provided with the tape drive. In addition a 6250 bpi tape drive may be attached to the Series 33.

## Printers

The Series 33 supports up to two systems line printers. These two printers may consist of 2608A printers and 2617/19A printers. The 2608A attaches to a GIC in the system processing unit; the 2617/19A printer not only attaches to a GIC but also uses an interface which occupies one I/O slot in the Series 33. This interface is ordered as option 302 to the 2617/19A printer. Each 2608A printer comes with a two-meter HP-IB cable (order 2608A option 333). One 2608A may be increased to four meters with an optional extender cable (31389B). Each 2617/19A printer with option 302 comes with a 15 meter (50 feet) cable.

\*If the Series 33 has a dedicated serial disc (7906S, 7920S, or 7925S) for backup, and a flexible disc drive for distribution of software updates, the magnetic tape drive is not required.

In addition to system line printers which are attached to GICs, the Series 33 can support local or remote spoolable 2631B character printers through one or more ADCCs. When used as a local/remote spoolable printer, the 2631B is connected directly to an ADCC port via hard-wired cable or modems. Up to four 2631B printers are supported on the Series 33 in this fashion (specify 2631B with option 331).

In addition to local/remote spoolable printers, the Series 33 can support 2601A daisy-wheel printers as terminals (non-spoiled only) via ADCCs. The 2601A can be directly attached to an ADCC port via hardwired cable.

The 2631B and 2601A printers can also be attached as slave devices (non-spoiled only) to Series 33 terminals, under the control of user-supplied application programs.

The Series 33 also supports the 2680A Intelligent Page Printer. Specify 2680A with option 302 for Series 33 cable. Up to two 2680A's may be attached to a GIC.

## Data Communications

Up to seven Intelligent Network Processor (INP) boards are configurable, three in the first card cage and four in the second. Each INP provides one communication line that may be used by DSN/DS, DSN/MTS, DSN/MRJE, DSN/RJE, DSN/IMF software. The same INP can be used (non-concurrently) by any of these software products. Each INP board requires one I/O slot and a connection to a GIC.

## Flexible Disc Drive

One 1.2 Mb flexible disc drive can be used on the Series 33. Order 9895A with option 010 to specify single master drive, and option 333 to specify Series 33 cable. The flexible disc drive attaches to a GIC in the Series 33; a 2M (6.5 feet) cable is provided with the drive.

## Memory Expansion

256 Kb of fault control memory is supplied with the System Processor Unit. System memory sizes of 512 Kb, 768 Kb, and 1024 Kb are also available. 30078A 128 Kb Memory Array boards should be ordered in pairs to achieve these memory sizes.

## I/O Expansion

The system processor unit contains 7 I/O slots for additional devices. To obtain seven more IMB slots, as well as six additional non-IMB slots (for INPs and 2617/19A Printer Interfaces only), order the I/O Expansion Kit (30416A).

### Previous Series 33 systems

Series 33 systems with built-in flexible disc drive (model 32412B, 32413B) have additional configuration guidelines.

For these Series 33 systems with built-in flexible disc drive and either:

- 1) two GICs and three INPs, or
- 2) three GICs and one or two INPs, or
- 3) four GICs and no INPs,

it is required that either:

- 1) the total number of I/O interface boards (GICs, ADCCs, INPs and 2617/19A printers) is nine (i.e. one I/O slot must be left empty after all I/O interface boards are installed), or
- 2) the Series 33 Expansion Kit (30416A) must be used.

For Series 33 systems with built-in flexible disc drive and either:

- 1) three GICs and three or more INPs or
  - 2) four GICs and one or more INPs,
- the Series 33 Expansion Kit (30416A) is required.

## HP 3000 Series III

### Interfacing Optional Equipment

Spare interface slots (numbered “circles” connected to the IOP Bus) are available for additional products, and can be occupied by optional equipment identified with an attached “circle.”

### Connecting Additional Terminals

One Asynchronous Terminal Controller (ATC) is supplied. It permits the connection of up to 16 point-to-point terminals, including the system console.

Additional ATCs can be added, each interfacing up to 16 point-to-point terminals. Up to 48 terminals can be interfaced in the System Processor Unit bay, unless a 30360A Hardwired Serial Interface (HSI) is configured—then up to 32 terminals can be interfaced to the System Processor Unit. The addition of an extension I/O Cabinet (30235A) provides expansion for a total of 64 point-to-point terminals.

Alternatively, terminals may be added to the Series III using DSN/Multipoint Terminal Software (DSN/MTS) and one or more Intelligent Network Processors (INP) or Synchronous Single Line Controllers (SSLC's). The number of terminals per line is normally determined by response time considerations but may be limited by the specific cabling option chosen. Up to 95 multipoint terminals total are supported per system, on one or more multi-drop lines.

Up to 96 terminals total (including point-to-point, multipoint, system console, and DSN/DS virtual terminals) are supported per system.

### Disc Drive

One 50 Mb or 120 Mb “master” disc drive with controller is required, connected directly to the Central Data Bus through a disc interface to the selector channel. Up to seven “slave” 50 Mb or 120 Mb disc drives can be attached to this drive.

### Magnetic Tape Units

One 1600 bpi or 800 bpi magnetic tape drive is required and is connected through a controller to the system. The supplied controller can also handle up to three extra drives of mixed densities (up to a total of four); when using mixed density drives, an 800 bpi master drive is recommended for configuration flexibility.

Additionally, a second controller may be ordered which can support up to four additional drives (5th through 8th on system) of mixed densities. When using mixed density drives, an 800 bpi drive is recommended. Each additional tape drive ordered can be supplied in a free-standing cabinet. See the 7970 data sheet for further configuration details on extra drives.

The Series III also supports the 7976A 1600/6250 bpi magnetic tape drive. Specify option 316 for a Series III interface cable. An HP-IB Interface Module 30341A is also required. One 7976A may be attached to the Series III via the HP-IB Interface Module.

## Printers

A maximum of four 2608A, 2617A, and/or 2619A system line printers, in any combination, may be connected to any HP 3000 Series III. Each printer requires its own 30209A controller. Each 2617/19A printer with option 300 comes with a 15 meter (50 feet) cable.

In addition to system line printers, the Series III can support local or remote spoolable 2631B character printers through one or more ATCs. When used as a local/remote spoolable printer, the 2631B is connected directly to an ATC port via hardwired cable or modems. Up to four 2631B printers are supported on the Series III in this fashion (specify 2631B with option 331).

In addition to local/remote spoolable printers, the Series III can support 2601A daisy-wheel printers as terminals (non-spoiled only) via ATCs. The 2601A can be directly attached to an ATC port via hardwired cable.

The 2631B and 2601A printers can also be attached as slave devices (non-spoiled only) to Series III terminals, under the control of user-supplied application programs.

The Series III also supports the 2680A Intelligent Page Printer. Specify option 300 for a Series III cable. An HP-IB Interface Module 30341A is also required. Up to two 2680A's may be attached to a Series III via the HP-IB Interface Module.

## Data Communications

The HP 3000 Series III supports up to two Hardwired Serial Interfaces (HSIs), and seven Intelligent Network Processors (INPs) and/or Synchronous Single Line Controllers (SSLCs) in any combination. See Terminal and System Communications sections for data communications hardware and software configuration guidelines.

## Memory Expansion

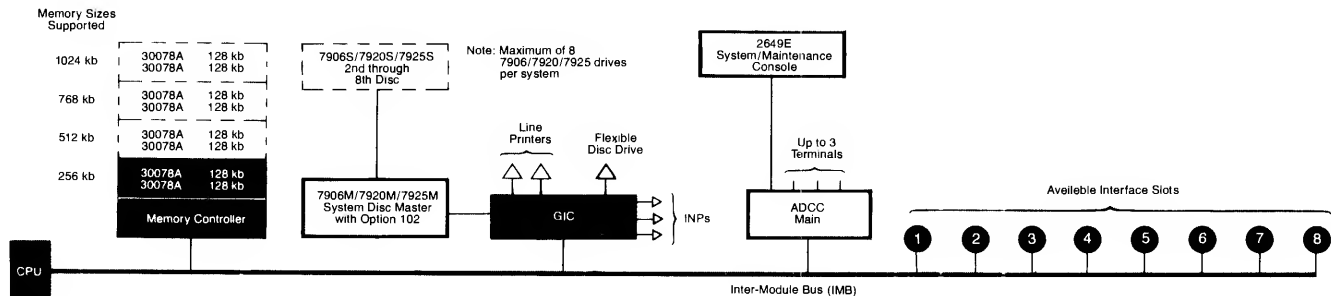
The 30418A memory expansion kit permits increasing memory capacity of installed HP 3000 Series III systems from 1024 Kb to a maximum of 2048 Kb. The kit includes two 256 Kb memory boards with built-in fault control, memory controller, cables, and mounting hardware. Further expansion to the full 2048 Kb is accomplished by adding two more optional 30008B memory array boards.

## Series II

The Series II is similar to the Series III except for the following:

- The HP-IB interface module (30341A) is not supported.
- A maximum of 64 terminals are supported.
- A maximum of 512 Kb of fault control memory is supported.

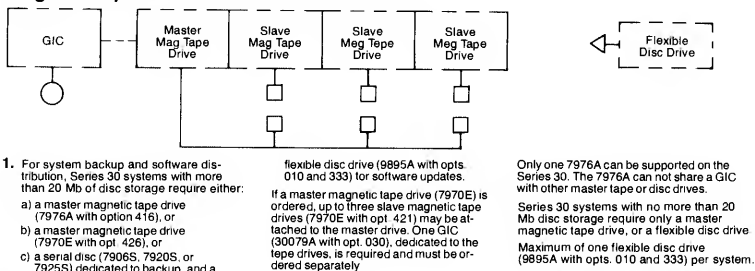
## Maximum Configuration Diagram For Series 30 (Models 32430C, 32431C)



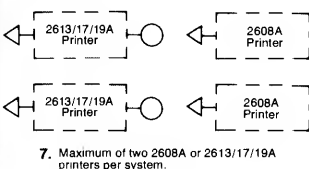
## KEY

|     |  |           |                        |                            |   |                      |                                |               |   |
|-----|--|-----------|------------------------|----------------------------|---|----------------------|--------------------------------|---------------|---|
| INP | = 30020A                                     | ADCC Main | = 30018A with opt. 030 | 1.2 Mb Flexible Disc Drive | 9895A with opts. 010 & 333 (1.2 Mb drive)               | Slave Mag Tape Drive | 7970E with opt. 421 (1600 bpi) | 2608A Printer | = 2608A dot matrix line printer with opt. 333 |
| GIC | = 30079A with opt. 030 (General I/O Channel) | ADCC Ext  | = 30019A with opt. 030 | Master Mag Tape Drive      | = 7970E with opt. 426 (1600 bpi) or 7976A with opt. 416 | 2613/17/19A Printer  | = line printer with opt. 301   | 2680A         | = Intelligent Page Printer with opt. 301      |

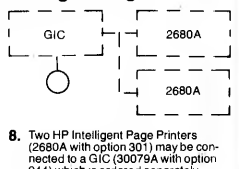
## Magnetic Tape Drive and/or Flexible Disc Drive



## Printers



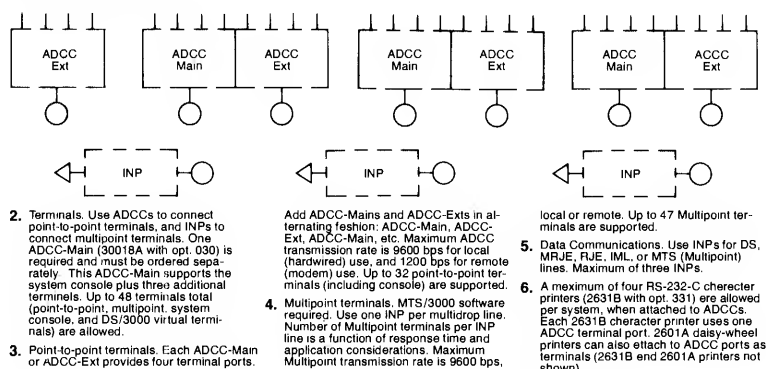
## Intelligent Page Printer



## Previous Series 30 models

9. Series 30 models with built-in flexible disc drive (models 32430S, 32431B) have additional requirements. See Series 30 Configuration Guidelines.

## Data Communications

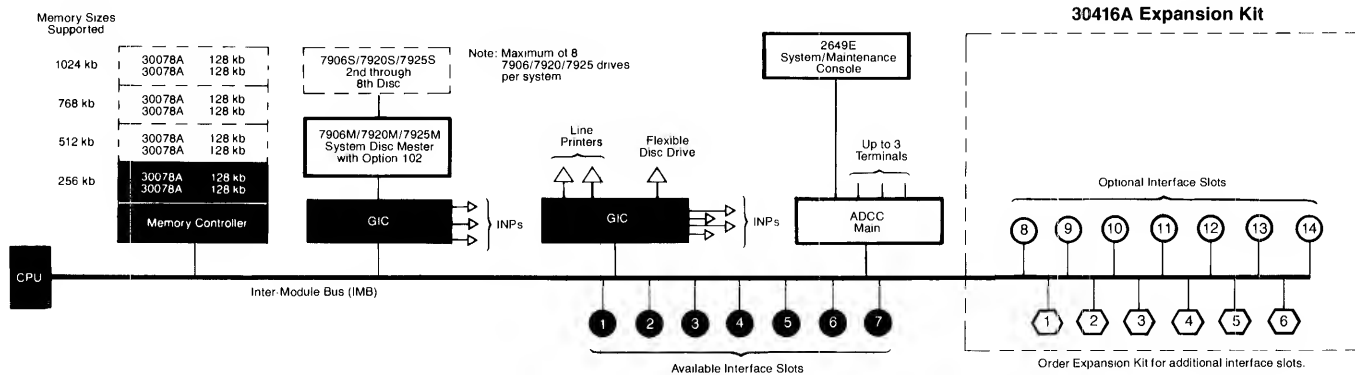


Supplied

Required. Must be ordered separately

Optional

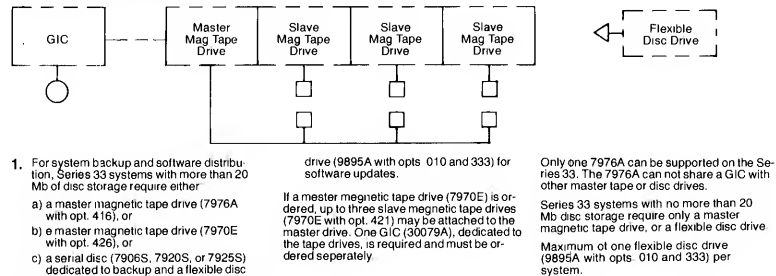
# Maximum Configuration Diagram For Series 33 (Models 32412C, 32413C)



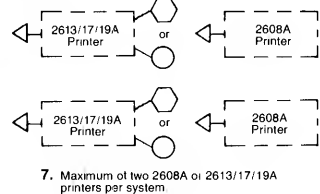
## KEY

|     |  |           |                              |                            |   |                      |   |               |  |
|-----|--|-----------|------------------------------|----------------------------|---|----------------------|---|---------------|--|
| INP | 30020A   | ADCC Main | 30018A (no options required) | 1 2 Mb Flexible Disc Drive | 9895A with opts 010, 333                              | Slave Mag Tape Drive | 7970E with opt. 421 (1600 bpi)                    | 2608A Printer | 2608A dot matrix line printer with opt. 333    |
| GIC | 30079A (no options required) (General I/O Channel) | ADCC Ext. | 30019A (no options required) | Master Mag Tape Drive      | 7970E with opt. 426 (1600 bpi) or 7976A with opt. 416 | 2613/17/19A Printer  | 2613A, 2617A, or 2619A line printer with opt. 302 | 2680A         | 2680A Intelligent Page Printer with option 302 |

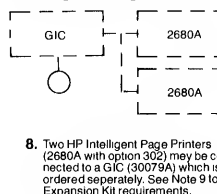
## Magnetic Tape Drive and/or Flexible Disc Drive



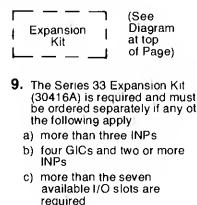
## Printers



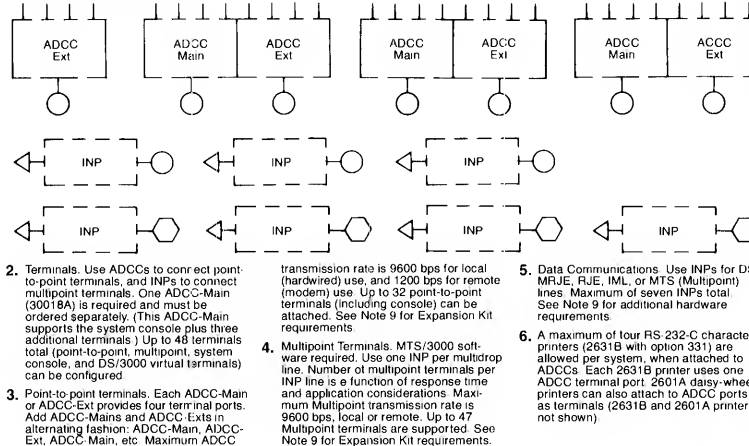
## Intelligent Page Printer



## Expansion Kit

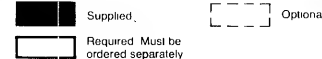


## Data Communications

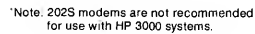


## Previous Series 33 models

**10.** Series 33 systems with built-in flexible disc drive (models 32412B, 32413B) have special requirements. See Series 33 Configuration Guidelines.



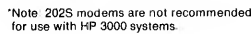




Notes

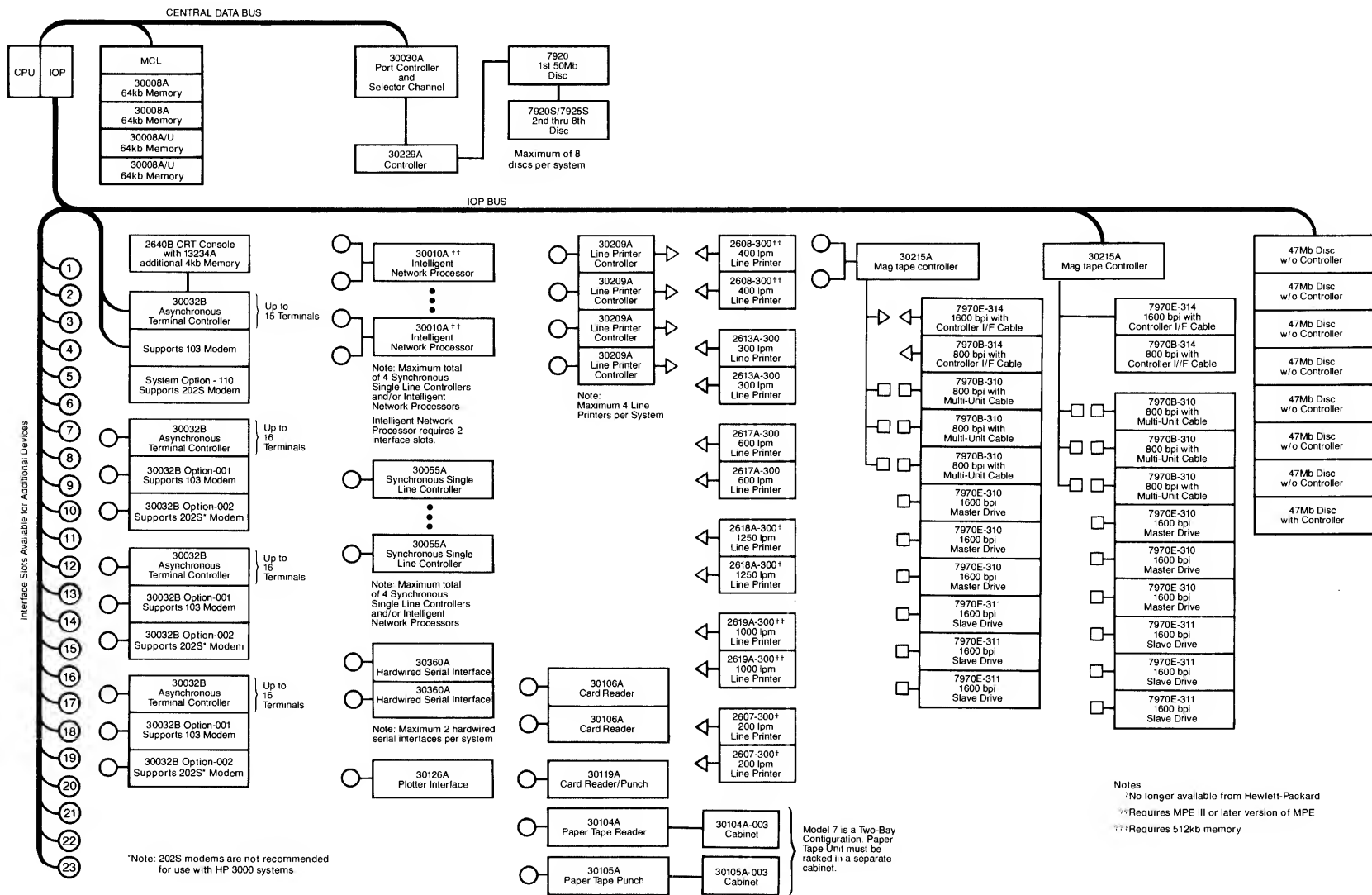
- No longer available from Hewlett-Packard
- Requires MPE III or later version of MPE
- Requires 512kb memory

### Configurations for Series 30, 33, II and III 1-13

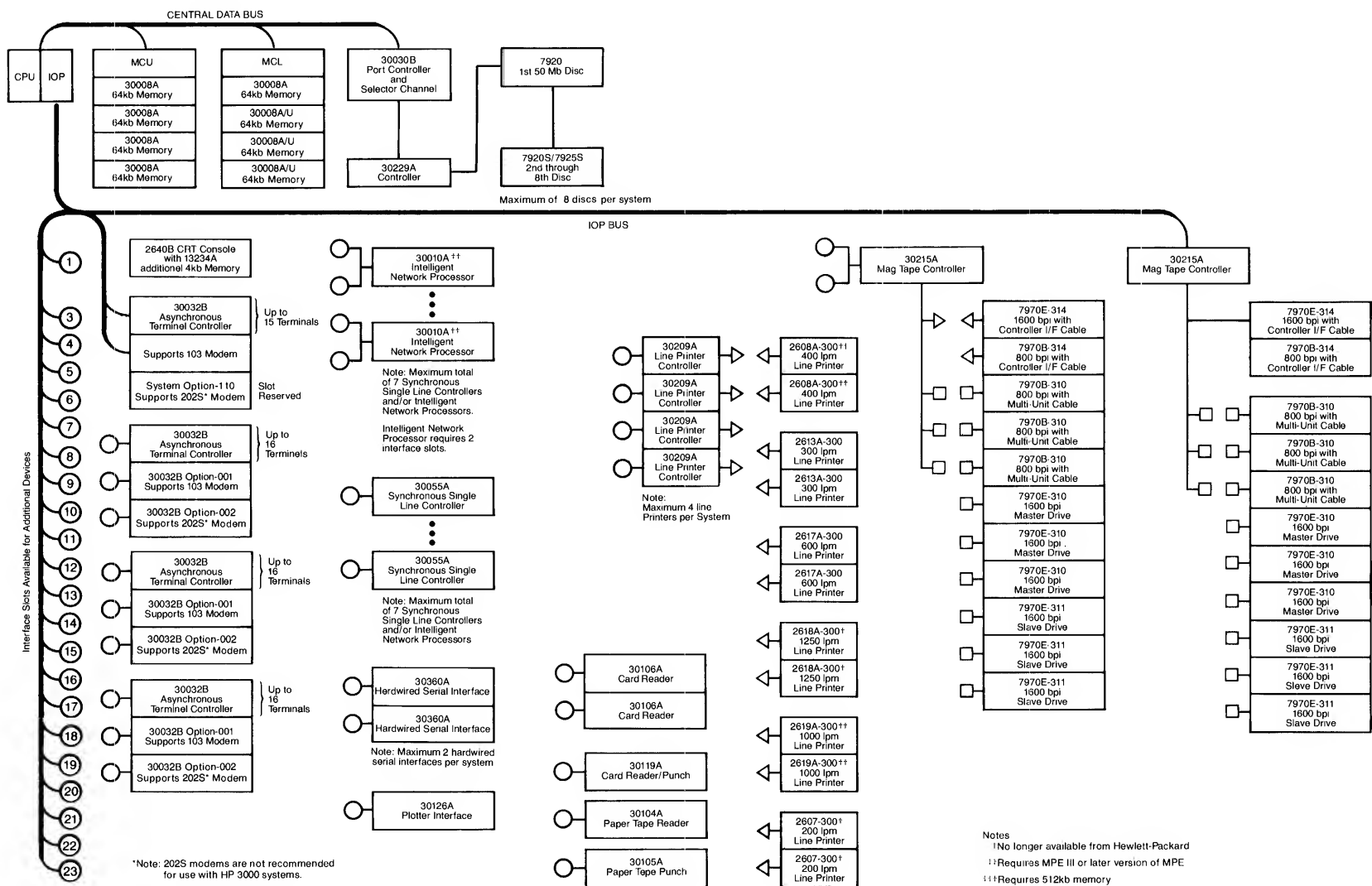


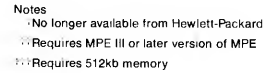
Notes  
† No longer available from Hewlett-Packard  
†† Requires MPE III or later version of MPE  
††† Requires 512kb memory

### Series II Maximum Configuration Diagram, Model 7

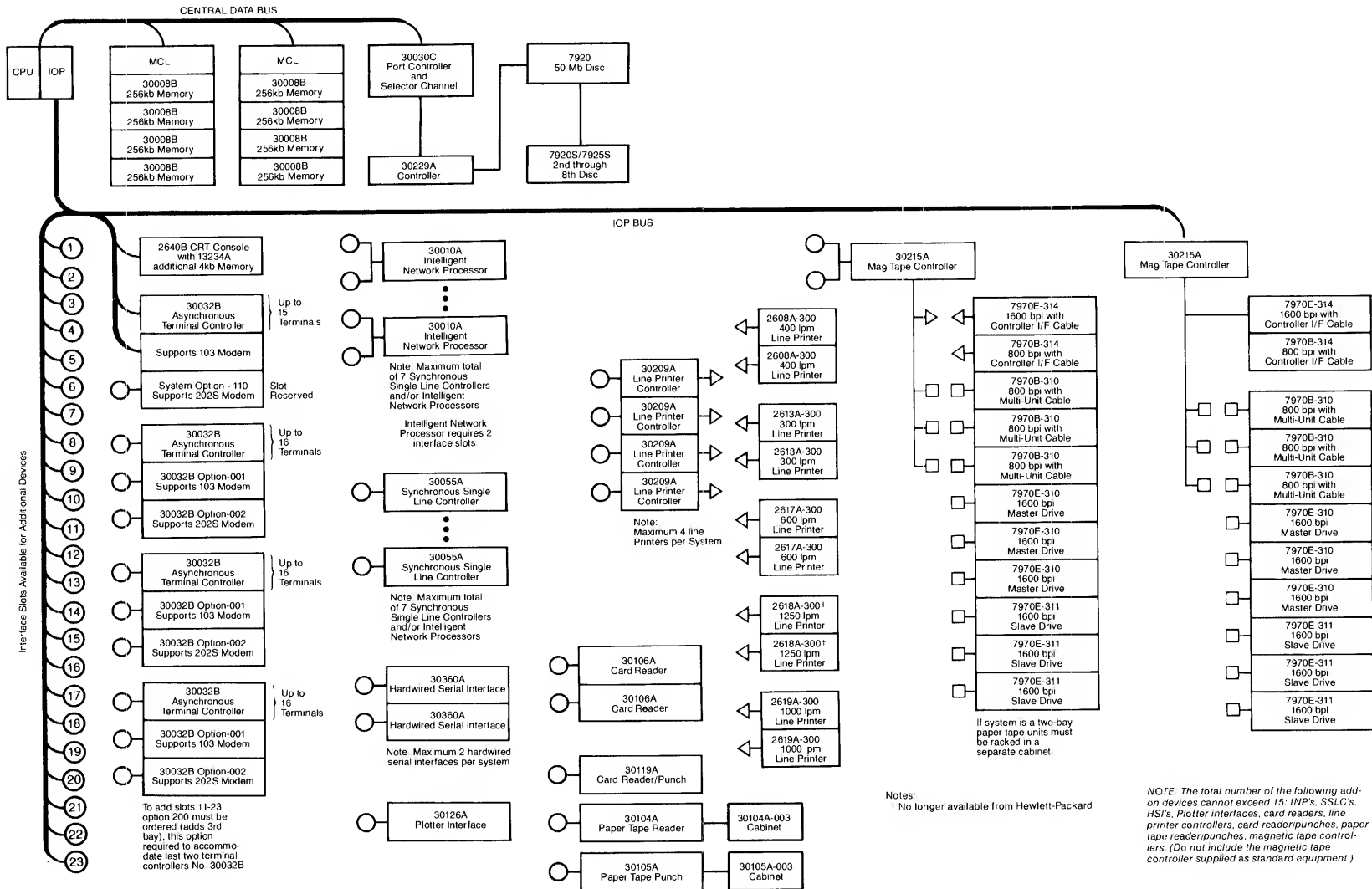


## Series II Maximum Configuration Diagram, Model 8

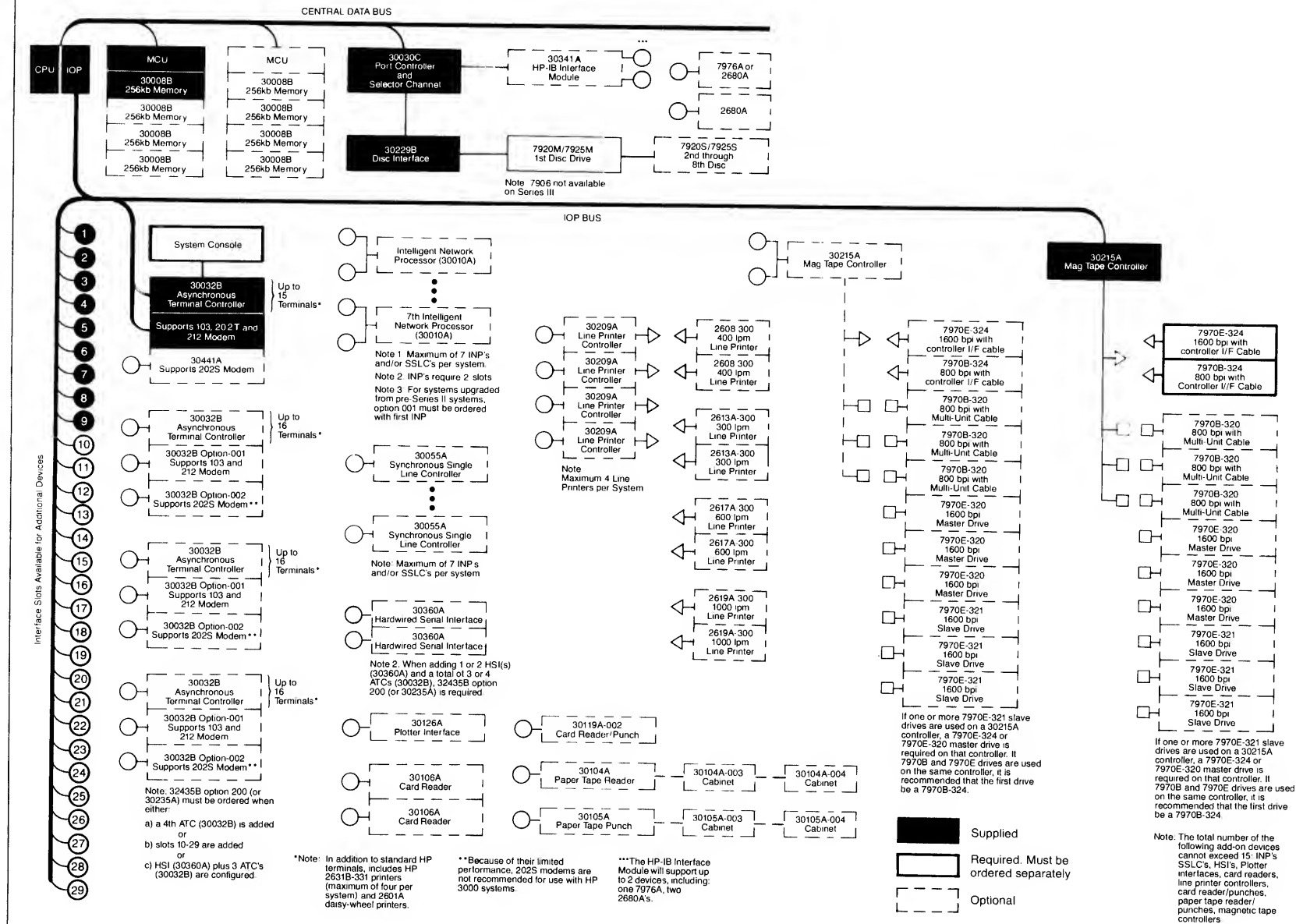


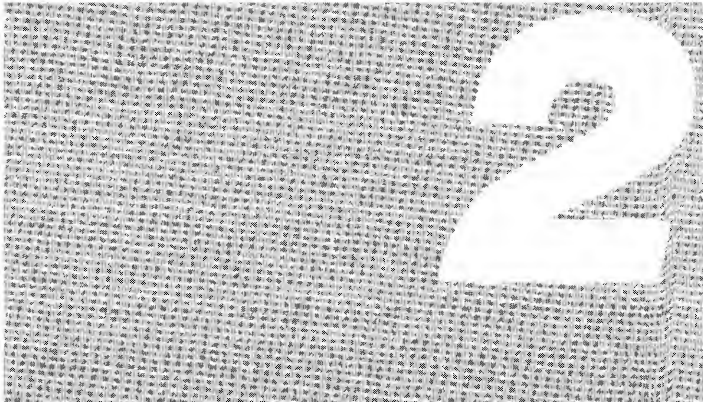


# Maximum Configuration Diagram for Early Series III Systems (Model 32421A—Pre-January, 1979)



# Maximum Configuration Diagram for Later Series III Systems (Model 32435B—After January, 1979)





# **Configuration Information for Pre-Series CX, Series CX and Series I Systems**



# Pre-HP 3000CX, HP 3000CX, and Series I Configuration Guide

## Discontinuance Notice

Hewlett-Packard supports all HP products for five years after discontinuance. HP will continue to support the products listed in this section until March 31, 1985.

The configuration diagram is designed to aid you in ordering additional peripherals, memory, and other equipment for your pre-Series II HP 3000 (HP 3000CX and original HP 3000). Simply follow the steps indicated when planning your system.

The diagrams show the maximum allowable configuration. The configuration diagram is based on two card cages in the I/O bay, which is the most likely case. For systems with one card cage, consult your Hewlett-Packard Sales Representative.

When indicating the present configuration and the peripherals to be added, matching the geometric shapes will insure that the correct peripherals are connected to the correct 'slots.' As you occupy each circle, square, or triangle with a peripheral device, write the slot number(s) in the selected option's corresponding geometric shape. Then cross out that numbered slot to avoid using the same slot twice.

To further aid you, the following discussions are provided for each option.

## Hardware Descriptions

### Memory

The maximum memory configuration for a pre-Series II HP 3000 is 128k bytes.

### Connecting terminals via asynchronous terminal controller

One HP 30032B Asynchronous Terminal Controller (ATC) is supplied with each system. It permits the connection of up to 16 terminals.

Although a maximum of two ATC's may be connected to a pre-Series II HP 3000, it is recommended that no more than one be attached unless thorough performance tests have been conducted to insure that system performance with the additional terminals operating will be satisfactory to the user's application. Each ATC occupies one to three slots.

The terminals supported on the pre-Series II computers are:

HP 2749B —Teleprinter (ASR-33)  
 HP 2382A —CRT Terminal  
 HP 2621A/B —CRT Terminal  
 HP 2621A/P —CRT Terminal With Printer  
 HP 2622A —CRT Terminal  
 HP 2623A —CRT Terminal  
 HP 2624A/B —CRT Terminal  
 HP 2626A/W—CRT Terminal  
 HP 2640A —CRT Terminal  
 HP 2641A —CRT Terminal  
 HP 2642A —CRT Terminal  
 HP 2640B —CRT Terminal  
 HP 2644A —CRT Terminal  
     (use of tape cartridge not supported)  
 HP 2645A —CRT Terminal  
     (Use of tape cartridges not supported).  
 HP 2647A\* —Graphics Terminal  
 HP 2648A\* —Graphics Terminal  
 HP 2762A —Printing Terminal  
 HP 2762B —Printing Terminal  
 HP 2635A/B —Printing Terminal

Certain non-HP terminals may be used as session terminals by specifying a terminal-type code at log-on time. Contact your HP sales representative for information regarding specific terminals. Since Hewlett-Packard does not support or warrant non-HP terminals on HP 3000 systems, such usage is the responsibility of the user.

Terminals on pre-Series II HP 3000 systems normally operate in character mode, except when accessed via the Data Entry Library (DEL/3000), when block mode is employed on HP terminals strapped for line transmission. Accessing terminals in other than character mode on pre-Series II systems is not supported unless DEL/3000 is used, because the asynchronous terminal controller software driver necessitates use of special programming techniques.

\*The 2647A and 2648A are supported on the HP 3000 as a 2645A. Development of software to make full use of graphics features and intelligent terminal capabilities on the HP 3000 is the responsibility of the user.

### Modem support

As shown, modem support is optionally associated with each ATC. Each type of modem support for each ATC requires one slot. Additional modem support may be added to an installed system by ordering HP 30441A ATC Upgrade Kit.

Modems supported for the pre-Series II HP 3000 are:

| Type       | Half/Full Duplex | Speed (CPS) |
|------------|------------------|-------------|
| Bell 103A  | Full             | 30          |
| Bell 113B  | Full             | 30          |
| Bell 212A  | Full             | 120         |
| Vadic 300  | Full             | 30          |
| Vadic 3400 | Full             | 120         |

The modems listed are for dial-up use. Hewlett-Packard does not support the use of leased lines with the pre-Series II HP 3000 Computers.

### Selector channel

The Selector Channel interfaces high speed peripheral devices to the computer and connects to the central data bus through a port controller. This channel is required when interfacing the 30229A disc interface to a pre-Series II HP 3000. Only one selector channel is allowed on HP 3000 and HP 3000CX computers.

If any cards presently occupy slots necessary for the addition of a selector channel, those cards must be moved to slots in the I/O bay (refer to the section titled 'Additions To I/O Bay').

Ordering information: 30030A Selector Channel (includes port controller, additional card cage, and cabling).

### 120 Mb, 50 Mb, and 15 Mb disc drives

The addition of a Selector Channel and Port Controller permits the user to attach up to a combined total of eight 7925 (120 Mb), 7920 (50 Mb), and/or 13180B (15 Mb) disc subsystems. Note that only one 30229A disc interface is allowed.

To order the 7925 or 7920 disc drives, refer to the current products configuration guide.

### Magnetic tape drive

One magnetic tape is supplied as part of the standard configuration for a system. The mag tape supplied (either 800 or 1600 bpi) occupies the triangle shaped slot shown. The controller provided with this standard tape

drive permits the connection of three additional tape drives (for a total of four) without occupying further slots.

Ordering an additional 30215A magnetic tape controller allows four more tape drives to be put on the system (for a maximum of eight). The additional controller occupies two slots. Additional tape drives are ordered as indicated on the current products price list.

Note: Customers with pre-CX style cabinets (30390A—52" bay with pedestal and modular door) desiring the add-on magnetic tapes should use option 150 to change to Series II style cabinets.

Ordering information: 30215A Magnetic Tape Controller.

### Line printers

Each line printer controller occupies one slot. A maximum of two line printer controllers can be added to each pre-Series II HP 3000 computer. Each controller will handle one of the printers indicated.

Line printers are ordered according to the instructions given on the current products price list.

Ordering Information: 30209A Line Printer Controller.

### Data communications

Each RJE/3000 Subsystem (2780/3780 emulation) requires an SSLC which occupies one slot. A maximum of two emulation subsystems is allowed.

### Card equipment

The 30106A card reader and the 30119A card reader/punch occupy one slot each. A maximum of one 30106A and one 30119A are allowed on a system.

### Plotter interface

The 30126A plotter interface occupies one slot, and only one plotter interface is allowed.

### Paper tape equipment

The 30104A Paper Tape Reader and the 30105A Paper Tape Punch each occupy one slot. Only one of each is allowed on a pre-Series II computer. The reader and punch subsystem together require 17 inches of vertical cabinet space. One subsystem or both may be installed below the magnetic tape drive on a three-bay system, if no other equipment occupies that space. If the space is not available an additional cabinet must be ordered.

### Additions to I/O bay

If any extra slots are occupied in the I/O bay because of the addition of new subsystems or the moving of cards from the CPU bay, a check must be made to insure sufficient power is available. To accomplish this, follow these steps:

**Power check for I/O bay**

Using Table below:

1. Locate each subsystem occupying a slot in the I/O bay in the table.
2. For each subsystem, circle the number of slots and amperes shown. Note that the Multiplexer Channel is already calculated.
3. Indicate the number of times each subsystem occurs in column (C). This is done only if the additional subsystems are occupying slots—not if they are attached to a device controller.
4. Multiply column (A) and (C) and enter in column (D) for each subsystem occupying slots.
5. Add up the number of slots indicated in column (D).
6. This total should equal the number of slots crossed out on the configuration guide. If not, an error has been made and steps (1) through (5) must be repeated.
7. After the number of slots has checked, multiply columns (B) and (C) and enter in column (E) for each subsystem occupying slots.
8. Add up column (E). If the total is 55 amperes or less, no additional power is required.
9. If the total of (E) is above 55, additional power is required and the power supply indicated below must be ordered.

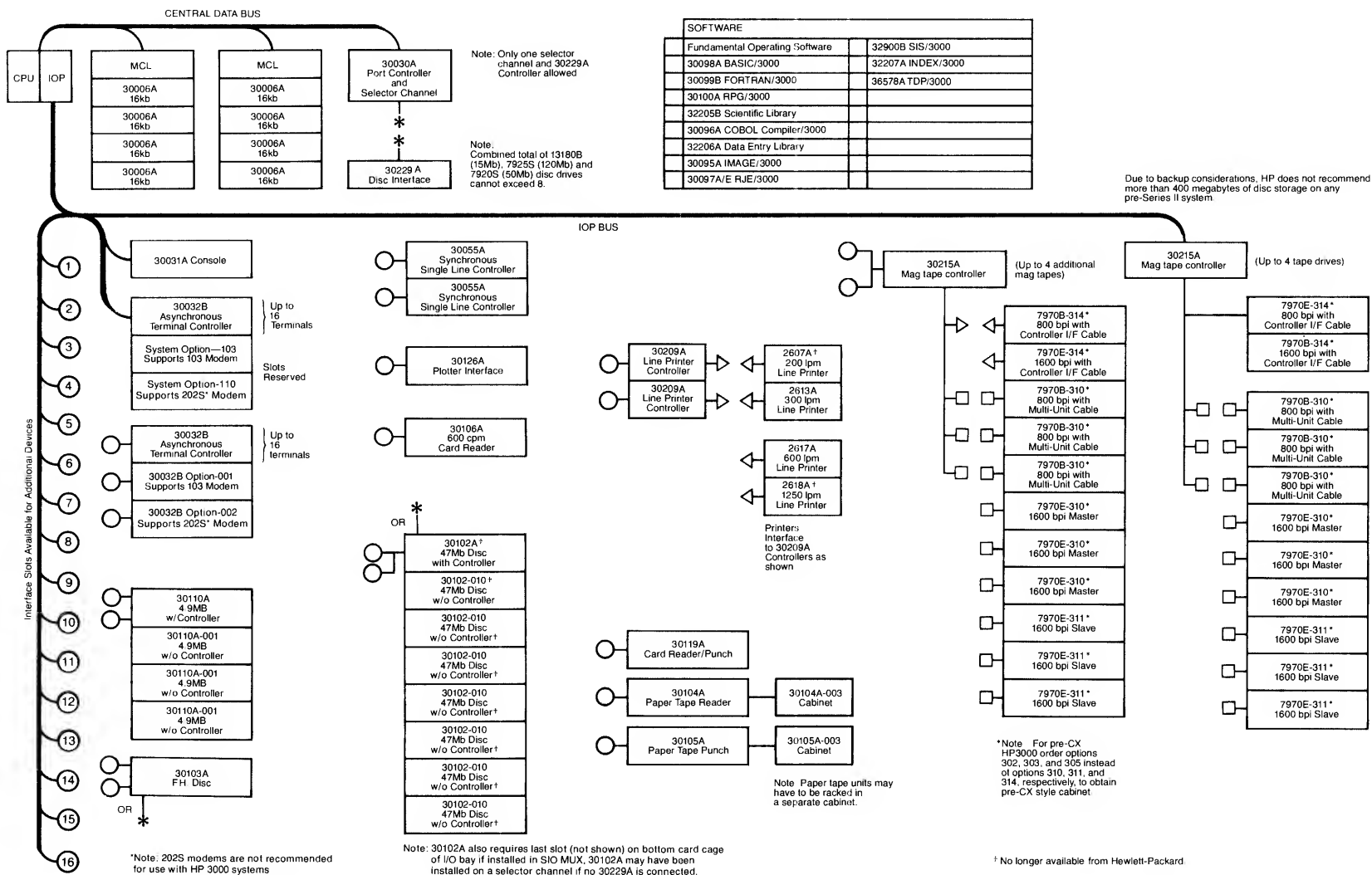
Ordering Information: 30412A Add-on Power Supply for pre-HP 3000CX and HP 3000CX. 30412A-001 Additional Card Cage (not required if two card cages in I/O bay, which is most likely).

|   | Product No. | Circuit Board No. | No. of Slots (A) | Maximum Current @ 5V (B) | No. of Subsystems This System (C) | Calculated Slots Used This System (D) | Calculated Amperes This System (E) |
|---|-------------|-------------------|------------------|--------------------------|-----------------------------------|---------------------------------------|------------------------------------|
| <b>Unit</b><br>Multiplexer Channel              | 30035A      | 30035A            | 1                | 3.6                      | 1                                 | 1                                     | 3.6                                |
| <b>Disc</b><br>*2-4 Mb                          |             | 30203A            | 2                | 5.5                      |                                   |                                       |                                    |
| *4.9 Mb   |             | 30210A            | 2                | 9.9                      |                                   |                                       |                                    |
| *47 Mb  |             | 30202A            | 3                | 14.3                     |                                   |                                       |                                    |
| <b>Mag Tape</b><br>7970 Controller              | 30215A      | 30215A            | 2                | 9.9                      |                                   |                                       |                                    |
| <b>Line Printers</b><br>Line Printer Controller | 30209A      | 30051A            | 1                | 4.4                      |                                   |                                       |                                    |
| <b>Card Equipment</b><br>Card Reader            | 30106A      | 30206A            | 1                | 3.3                      |                                   |                                       |                                    |
| Reader/Punch                                    | 30119A      | 30219A            | 1                | 4.0                      |                                   |                                       |                                    |
| *1200 CPM Reader                                |             | 30207A            | 1                | 3.3                      |                                   |                                       |                                    |
| *250 CPM Punch                                  |             | 30051A            | 1                | 4.4                      |                                   |                                       |                                    |
| <b>Paper Tape</b><br>Reader                     | 30104A      | 30050A            | 1                | 4.0                      |                                   |                                       |                                    |
| Punch   | 30105A      | 30050A            | 1                | 4.0                      |                                   |                                       |                                    |
| <b>Miscellaneous</b><br>SSLC                    | 30130B      | 30055A            | 1                | 3.5                      |                                   |                                       |                                    |
| Plotter Interface                               | 30126A      | 30226A            | 1                | 2.2                      |                                   |                                       |                                    |
| **ATC   | 30032B      | 30032B/<br>30060A | 1                | 2.8                      |                                   |                                       |                                    |
| **103 Modem Control                             | 30032B-001  | 30061A            | 1                | 1.3                      |                                   |                                       |                                    |
| **202 Modem Control                             | 30032B-002  | 30061A            | 1                | 1.3                      |                                   |                                       |                                    |
| **Clock/Console                                 | 30031A      | 30031A            | 1                | 3.3                      |                                   |                                       |                                    |
| <b>TOTALS</b>                                   |             |                   |                  |                          |                                   |                                       | Maximum Amperes: 55                |

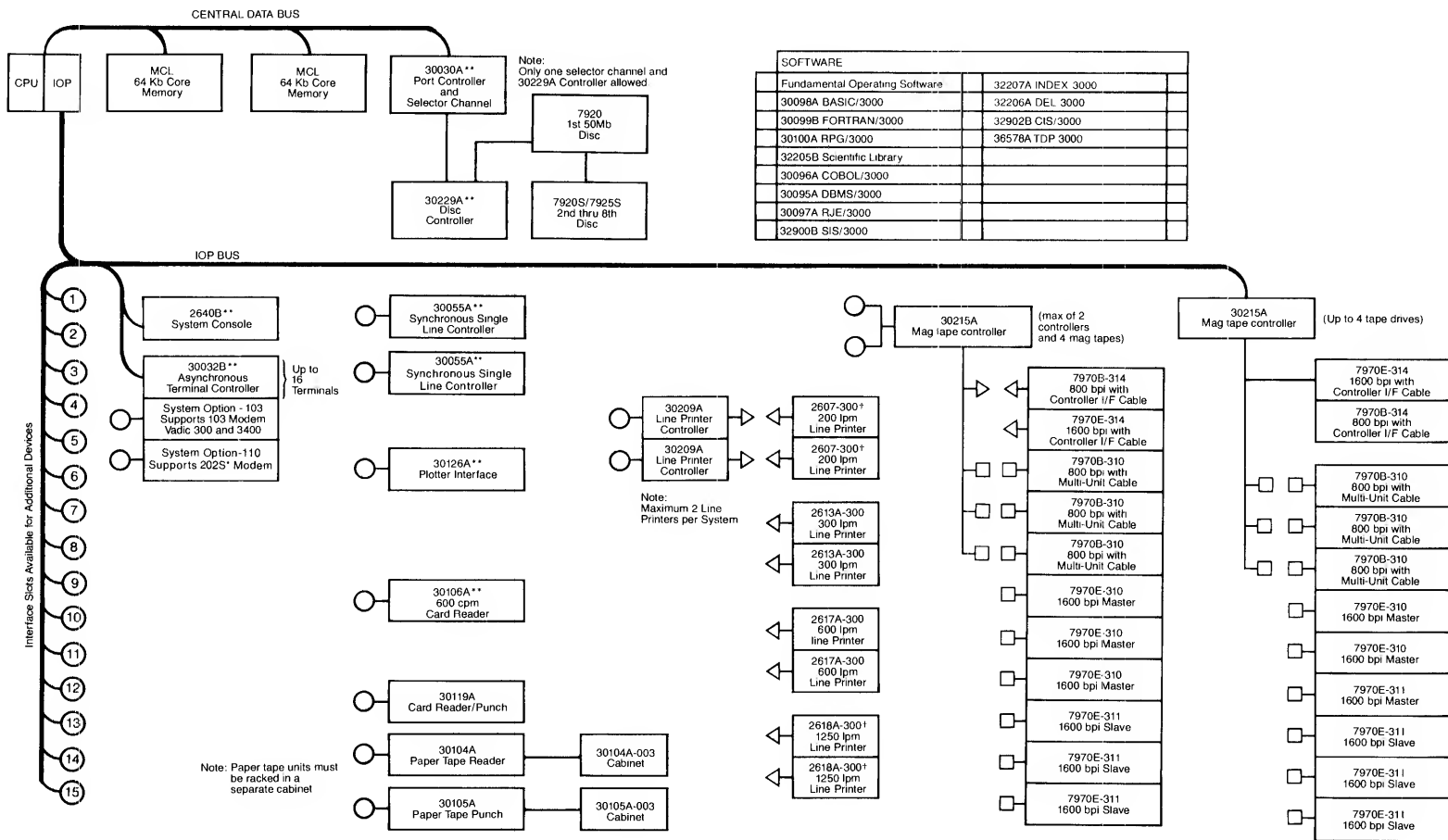
\*Product no longer offered.

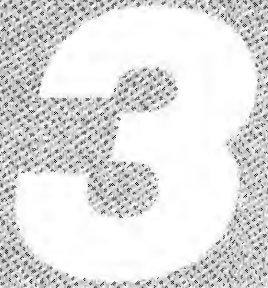
\*\*If these products are in the CPU bay (which is the most likely location) do not double count them in the power check of the I/O bay.

## Configuration Diagram for HP 3000 and HP 3000CX Systems



## Configuration Diagram for HP 3000 Series I Systems



A large, bold, white number '3' is positioned in the upper right corner of the page. The background of the entire page is a fine, textured gray.

## **Upgrades to Series III Systems**

—From Pre-Series CX, Series CX,  
and Series I Systems

—From Series II Systems

# HP 3000, HP 3000CX and HP 3000 Series I Upgrade to Series III

## Model 30307A

This kit is available for upgrading HP 3000, HP 3000CX, and Series I systems to HP 3000 Series III configurations. The model 30307A kit expands an existing system to a Series III with a 256kb memory, which can be further increased to 1024kb. To expand memory beyond 1024kb order product number 30418A with option 001 in addition to 30307A with option 507.

## Features

- 256 to 1024kb of fault control memory
- Multiprogramming Executive Operating System
- 209 instructions
- 64-bit extended precision numbers
- Power fail/automatic restart

The upgrades provide increased memory and an expanded MPE operating system, plus the following components.

- Series III central processor
- Series III instruction set
- Series III multiplexer channel
- Associated power supplies and card cages
- 60 Hz, 12.6 KVA isolation transformer

Certain existing system components will be replaced by the upgrade, and exchange credit for these items will be given.

## Software

The Series III Fundamental Operating Software, which is part of the upgrade subsystem, includes:

- Multiprogramming Executive
- EDIT/3000
- FCOPY/3000
- SORT-MERGE/3000
- KSAM/3000
- IMAGE/3000
- QUERY/3000
- HP VPLUS/3000
- Facility to execute compiled programs without the source language compiler on the system (except for programs written in APL/3000).

Additionally, all language processors, libraries, or utilities, will be supplied if they were purchased for, and currently run on, the existing HP 3000 system. All syntactical and operational aspects of the upgraded software have been carried over to the HP 3000 Series III software. This means that commercially oriented and most scientific/timesharing programs will run on the upgraded Series III computer with only minor changes. Programs utilizing FORTRAN double precision and BASIC long data types will require recompilation and possible recoding.

## Controller Configurations

### Disc controller configurations

The following table shows which disc controller configurations can be supported in the upgraded system. With existing systems which have a 30229A controller, 7906, 7920, and 7925 discs can be accommodated.

| Multiplexer Channel        | Selector Channel  |
|----------------------------|-------------------|
| 1. 2888A (47Mb) Controller | None              |
| 2. None                    | 30229A Controller |
| 3. 2888A (47Mb) Controller | 30229A Controller |

The configurations listed above have been thoroughly tested on the Series III. Disc configurations different from those listed should be checked by your Hewlett-Packard Sales Representative.

Note: STAR software is not supported on Hewlett-Packard Series III systems.

### Trade-in allowances

A credit toward the purchase of this upgrade product will be issued for the following replaced equipment which must be returned to Hewlett-Packard:

- The old CPU, including the extended instruction set, if present.
- All core memory and memory controllers.
- The old multiplexer channel.
- One or two cabinets with fans, blowers, power distribution units, and electrical wiring.
- System control panel (either the "CX" panel contained in the cabinet door or the older maintenance panels with interface which had been mounted in the separate system desk. The system desk itself, if present, stays with the customer.)
- The remaining DC power supplies.
- The card cages mounted in the one or two cabinets and the associated backplanes and cables.

The amount of the credit depends on the memory configuration of the existing system. In addition, if the system being upgraded has a selector channel, there is a credit to the customer for returning the two replaced printed circuit assemblies to Hewlett-Packard (the new assemblies are ordered via option 132).

There is no trade-in credit available for any additional older style cabinets replaced via option 150.

### Selector channel

For systems containing a 30030A or B selector channel, order option 132 to upgrade to the Series III specified 30030C unit. To add 7920 or 7925 discs to systems without a selector channel, order 30229B disc interface and a 30030C selector channel. The first disc drive must be a 7920M or 7925M master drive with controller.



## Ordering Guide

| Product No.<br>and Options | Description  |
|----------------------------|--|
|                            | <b>HP 3000, HP 3000CX and HP 3000 Series I upgrades to Series III</b>  |
| 30307A                     | Upgrade to HP 3000 Series III for HP 3000, HP 3000CX and HP 3000 Series I. 120/208V, 60Hz, 256kb Memory. Includes Series III Fundamental Operating Software, and complete user manual set.   |
| 001                        | Add one 30310A power supply. Needed to upgrade Series I to Series III.   |
| 015                        | 230V, 50Hz single-phase operation, deletes isolation transformer.  |
| 050                        | Deletes isolation transformer.   |
| 132                        | Upgrade existing selector channel (30030A) to Series III compatible selector channel (30030C).<br>Note:<br>This is not a complete, new selector channel.   |
| 150                        | Add one Series III style peripheral cabinet (29402B).  |
| 152                        | Terminal Controller Upgrade. Upgrade early version Asynchronous Terminal Controller board (30060-60001) to present board (30032B-003).<br>Note:<br>30060-60001 board will be found in only a few early HP 3000 systems. This option is not required for Series I or most existing HP 3000 and HP 3000CX computers.               |
|                            | TRADE-IN ALLOWANCES (applied against purchase of 30307A). These allowances are for returned parts when upgrading a Series I or pre-Series II system to an HP 3000 Series III system.   |
| 200                        | 128kb Series I or pre-Series II parts returned.  |
| 201                        | 96kb pre-Series II parts returned.   |
| 202                        | Series I or pre-Series II selector channel printed circuit assemblies (2 boards).<br>Note:<br>To expand memory beyond 256kb order product number 30008B (256kb memory module). To expand memory beyond 1Mb order product number 30418A with option 001 and additional 30008B memory modules for expansion from 1536kb to 2048kb. |
|                            | <b>HP 3000 Series I I/O expansion products</b>   |
| 30030A                     | High Speed Selector Channel. For HP 3000 pre-Series II systems.  |
| 30412A                     | Add-on I/O Power Supply for pre-Series II Systems  |
| 001                        | Additional card cage   |
| 30413A                     | I/O Expansion. Adds 10 I/O slots to HP 3000 Series I. Field Installed.   |

## Ordering Guide

| Product No.<br>and Options | Description   |
|----------------------------|---|
|                            | <p><b>Memory and I/O Expansion for upgrades from HP 3000, HP 3000CX, and HP 3000 Series I to HP 3000 Series III</b></p> <p>30418A 1536kb Memory Expansion Kit. For all HP 3000 Series III's. Expands system memory from 1024kb to 1536kb. See notes below for prerequisites. To expand to the full 2048kb, order two 30008B 256kb memory array boards.</p> <p>001 Adds one 30311A power supply. Required for Series III's (32421A only). Also required for any Series III upgraded from a Series II which had only one 30311A power supply.<br/>Prerequisites:<br/>You must have a Series III with 1024kb of memory purchased as either a new system option or as an upgrade with a 30417A Series II upgrade kit.<br/>If your HP 3000 Series III was upgraded from an HP 3000 Series II Model 5 or 7 and you wish to expand to 1536kb of memory or greater, you must order a I/O expansion kit for HP 3000 Series III (32421A) as a prerequisite to ordering the 30418A Series III memory expansion kit.</p> <p>30008B 256kb Memory Array. For use in Series III systems only.<br/>Note:<br/>Only 256kb, 512kb, 768kb, 1024kb, 1536kb, and 2048kb memory sizes are supported. When ordering additional memory (30008B) make sure that the total system memory is equal to one of the supported sizes.</p> <p>30030C High-Speed Selector Channel. For systems which have upgraded to a Series III without a selector channel.<br/>Note:<br/>30030C may be used only with 30229B disc interface (see above). One 30229B disc interface required per 30030C high-speed selector channel.</p> <p>30229B 7920/7925 Disc Interface. Interfaces one 7920M or 7925M disc drive and controller to an HP 3000. Includes single card disc interface to be located in system bay and 18 ft. multiunit cable to connect to controller in master drive. Requires 30030C Selector Channel for Series III, 30030B Selector Channel for Series II, or 30030A Selector Channel for 3000CX or Series I.<br/><br/>I/O Expansion Kit for HP 3000 Series III (32421A). Adds 1 cabinet with 13 I/O slots and capacity for an additional 32 asynchronous terminal ports.<br/>Note:<br/>To order, order a 30408A and a 30408A opt 002.</p> <p>30408A HP 3000 Series II Model 8 Upgrade. Includes memory expansion kit, additional cabinet for I/O expansion of 13 I/O slots plus space for 32 additional terminal ports.</p> <p>002 Deletes memory expansion kit. Adds I/O expansion only.</p> |

# HP 3000 Series II Upgrade to Series III

## Model 30417A

The 30417A kit is designed to upgrade an HP 3000 Series II system to a Series III with 512kb of memory. 512kb MOS memory is included with the kit.

Series II models, 6, 8, and 9 upgraded to Series III systems can be expanded to 2048kb using 30008B memory array boards. Series II models 5 and 7 upgraded to Series III systems can be expanded to 1024kb with the addition of 30008B memory array boards; to expand from 1024kb to 2048kb, the 30408A-002 I/O expansion kit, 30418A-001 memory expansion kit, and 30008B memory array boards must be ordered. A credit toward the purchase of this upgrade product will be issued for the required return of the Series II CPU, selector, multiplexer, backplane, 30008A memory array boards and associated memory control hardware.

## System Prerequisites

The minimum system required is an HP 3000 Series II.

## Software

The Series III Fundamental Operating Software is part of the upgrade kit. If not presently installed, the following software subsystems will be supplied free as part of the Series III FOS:

- IMAGE/3000
- QUERY/3000
- HP VPLUS/3000
- KSAM/3000
- Facility to execute compiled programs without the source language compiler on the system (except for programs written in APL/3000).

The MPE operating system is required and supplied as part of the Series III FOS.

## Configuration, environment, power

All configuration, environmental, and power requirements remain unchanged from the original Series II model which was upgraded. To add more peripherals to your upgraded Series II, refer to original configuration information.

## Series II Ordering Information

| Product No.<br>and Options | Description  |
|----------------------------|--|
|                            | <p><b>HP 3000 Series II to Series III upgrade</b></p> <p>30417A HP 3000 Series III Upgrade. Converts any HP 3000 Series II to a Series III with 512kb of MOS memory. System may ultimately be expanded to 2 Mb of MOS memory (see Series III memory expansion section for ordering information). Must order one option: 499, 500, 501, 502, 503, 504, 505 through the purchase of 2 additional 30008B memory boards.</p> <p>499 Credit for 128kb system</p> <p>500 Credit for 192kb system</p> <p>501 Credit for 256kb system</p> <p>502 Credit for 320kb system</p> <p>503 Credit for 384kb system</p> <p>504 Credit for 448kb system</p> <p>505 Credit for 512kb system</p> <p>532 Deletes selector channel replacement board. For systems without selector channels (i.e., HP 2888 disc-based).</p> <p>533 Upgrades second selector channel. For systems with two selector channels. Consult the factory regarding this option.</p>   |
|                            | <p><b>Memory and I/O Expansion for upgrades from the HP 3000 Series II to the HP 3000 Series III</b></p> <p>30418A 1536kb Memory Expansion Kit. For all HP 3000 Series III's. Expands system memory from 1024kb to 1536kb. See notes below for prerequisites. To expand to the full 2048kb, order two 30008B 256kb memory array boards.</p> <p>001 Adds one 30311A power supply. Required for Series III's (32421A only). Also required for any Series III upgraded from a Series II which had only one 30311A power supply.</p> <p>Prerequisites:<br/>You must have a Series III with 1024kb of memory purchased as either a new system option or as an upgrade with a 30417A Series II upgrade kit.<br/>If your HP 3000 Series III was upgraded from an HP 3000 Series II Model 5 or 7 and you wish to expand to 1536kb of memory or greater, you must order a I/O expansion kit for HP 3000 Series III (32421A) as a prerequisite to ordering the 30418A Series III memory expansion kit.</p> |
| 30008B                     | <p>256kb Memory Array. For use in Series III systems only.</p> <p>Note:<br/>Only 256kb, 512kb, 768kb, 1024kb, 1536kb, and 2048kb memory sizes are supported. When ordering additional memory (30008B) make sure that the total system memory is equal to one of the supported sizes.</p>   |
| 30030C                     | <p>High-Speed Selector Channel. For systems which have upgraded to a Series III without a selector channel.</p> <p>Note:<br/>30030C may be used only with 30229B disc interface (see above). One 30229B disc interface required per 30030C high-speed selector channel.</p>  |

## Series II Ordering Information

| Product No.<br>and Options | Description  |
|----------------------------|--|
|                            | <b>COBOL II Extended Instruction Sets</b>  |
| 32234A                     | Extended Instruction Set. For Series II/III required for systems shipped prior to 12/16/79 which wish to run COBOL II.   |
|                            | <b>HP 3000 Series II I/O expansion products</b>  |
| 30030B                     | High Speed Selector Channel. For Series II Systems. Note: Series III systems use 30030C.<br>Note:<br>30030B may be used only with 30229B disc interface. One 30229B is required for the 30030B.  |
| 30229B                     | 7920/7925 Disc Interface. Interfaces one 7920M or 7925M disc drive and controller to an HP 3000. Includes single card disc interface to be located in system bay and 18 ft. multiunit cable to connect to controller in master drive. Requires 30030C Selector Channel for Series III, 30030B Selector Channel for Series II, or 30030A Selector Channel for 3000CX or Series I.   |
| 30441A                     | Asynchronous Terminal Controller Field Upgrade Kit. Converts a standard 30032B to a 30032B-001. The same kit converts a 30032B-001 to a 30032B-002. Ordering of two kits converts a standard 30032B to a 30032B-002.   |
| 30408A                     | HP 3000 Series II Model 8 Upgrade. From Models 5, 6, or 7. Converts these models to a system similar to a Series II Model 8. Includes memory expansion kit to accommodate up to 512kb of memory, additional cabinet for I/O expansion of 13 I/O slots plus space for 32 additional terminal ports (has one 64kb memory array board).<br>Note:<br>To obtain desired memory size, order additional 30008A or 30008U 64kb memory modules. |
| 001                        | Adds both memory expansion and I/O expansion kits. Required for Model 6 with 256kb or less.  |
| 002                        | Deletes memory expansion kit and 64kb memory array board. Adds I/O expansion only. Required for Model 6 systems with 320kb or greater.   |
|                            | <b>Field-Installed HP 3000 Series II memory expansion</b>  |
| 30008U                     | Refurbished 64kb Memory Module. May be used in place of 30008A memory modules. Subject to availability.<br>Note:<br>Models 5 and 7 memory expandable to 256kb; Models 6, 8 and 9 memory expandable to 512kb.<br>Note:<br>Required for customers who have upgraded from an HP 3000CX to Series II and wish to expand memory from 256kb to 320kb.  |
| 30411U                     | Refurbished Memory Expansion Kit for Series II Model 6 allows Model 6 with 256kb or less memory to accommodate up to 512kb of memory. Includes one 64kb memory board. Subject to availability.   |

## Specifications for All Upgrades to Series III

### Power requirements

Standard Model

208V + 5%—10%, 3 phase, 60 Hz  $\pm$  ½ Hz, 7.5 KVA

230 V + 5%—10%, 50 Hz  $\pm$  ½ Hz, 7.5 KVA

System must be connected to power supply via an isolation transformer.

### Environmental conditions

Recommended Operating Temperature: 20 to 25.5°C (68°–78°F)

Recommended Relative Humidity: 40% to 60% (non-condensing)

Heat Dissipation: 22,900 btu/hr (5752 kilocalories/hr)

### Documentation

Manuals for the Series III Fundamental Operating Software and Hardware are included in the product. Documentation detailing the changes to the FORTRAN compiler, BASIC interpreter, BASIC compiler, and Scientific Library may be purchased as additional items. (HP 3000CX to HP 3000 Series III—Program Conversion Guide, 30000-90046).

### Configuration notes

#### Cabinets

System owners with more than two pre-3000CX cabinets (30390A—52" bay with pedestal and modular door) may order the appropriate quantity of option 150 to replace these cabinets. This will provide all-new 56-inch (142.2 cm) cabinets for the System.

### Asynchronous terminal controller

HP 3000 Systems installed before December, 1974 require option 152 to upgrade to the current ATC.

### Unsupported peripherals

The following HP 3000 and HP 3000CX peripherals will not be supported on the Series III: IBM 2741 Terminal, HP 30107A Card Reader, HP 30112A Card Punch, HP 30103A Fixed Head Discs and HP 7900 Disc.

### Maintenance

The basic monthly maintenance charge for the upgraded system is as indicated for the standard HP 3000 Series III plus the charge for any equipment added to the standard models and minus the charge for standard equipment or subsystems not included in the upgraded system.

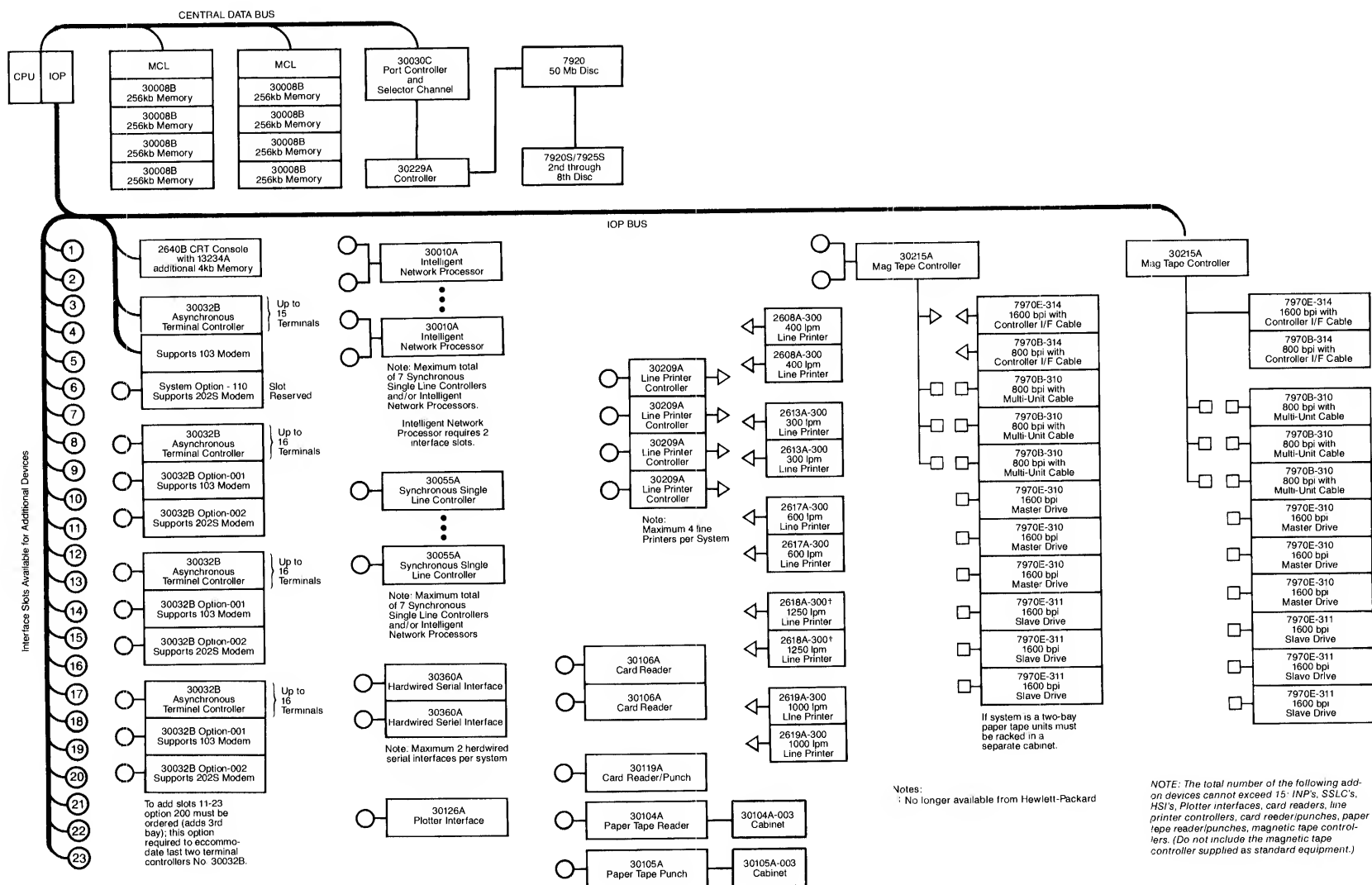
### Warranty

The equipment purchased as part of this upgrade product carries the standard Hewlett-Packard 90-day warranty. The new equipment will be in warranty for 90 days. The equipment owned prior to the upgrade (e.g., disc drives, line printers) will not go back into warranty as a result of the upgrade. During the warranty period the basic monthly maintenance charge calculated for the upgraded system will be reduced.

### Installation

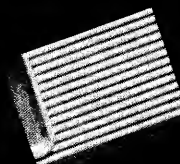
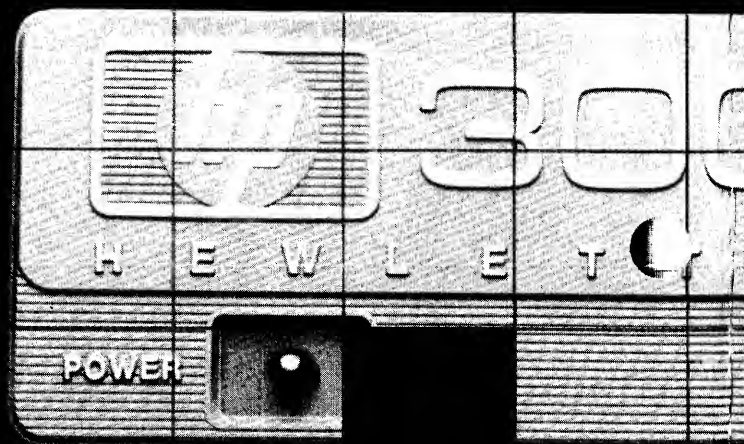
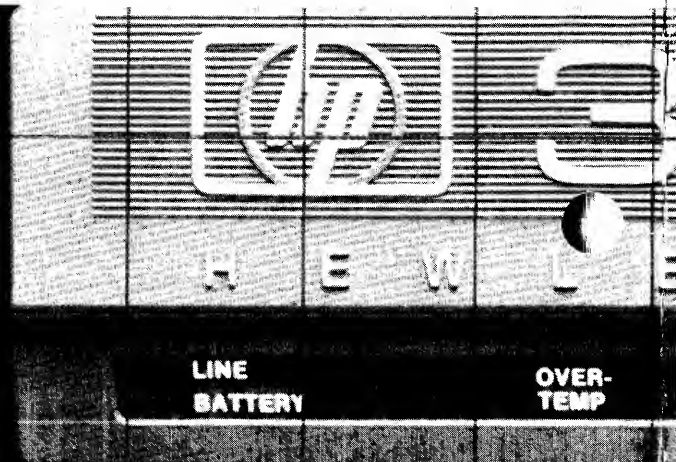
Field installation during normal working hours by an HP Customer Engineer is included in the price of the upgrade. Installation outside of normal working hours is on an extra-charge basis subject to local availability.

## HP 3000 Series III Maximum Configuration Diagram for Series III (32421A)



Notes:  
 1. No longer available from Hewlett-Packard

NOTE: The total number of the following add-on devices cannot exceed 15: INP's, SSLC's, HSI's, Plotter interfaces, card readers, line printer controllers, card reader/punches, paper tape reader/punches, magnetic tape controllers. (Do not include the magnetic tape controller supplied as standard equipment.)



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